Amendments in the claims

1. (currently amended) An electromechanical device, comprising:

(a) two or more electrodes comprising an input electrode and at least one output electrode;

(b) a membrane positioned with said two or more electrodes, wherein ~~one of said two or more electrodes is an~~ said input electrode ~~and~~ receives an electrical signal that causes vibration of said membrane and said vibration is coupled to said at least one ~~of said two or more electrodes that is an~~ output electrode, whereby coupling between said input electrode and said at least one output electrode is provided; and

(c) a ground referenced to said input electrode and said output electrode~~.~~;

wherein a voltage is applied to said electromechanical device to vary said coupling.

2. (original) The electromechanical device as set forth in claim 1, wherein said membrane is positioned at a distance from said two or more electrodes.

3. (original) The electromechanical device as set forth in claim 1, wherein said two or more electrodes are positioned at various distances from said membrane.

4. (original) The electromechanical device as set forth in claim 1, wherein said membrane is a vibrating coupling membrane.

5. (currently amended) The electromechanical device as set forth in claim 1, wherein ~~a DC bias~~ said voltage is a DC bias voltage applied to said two or more electrodes to set or modify a width of a gap in said electromechanical device.

6. (original) The electromechanical device as set forth in claim 1, wherein said electromechanical device is a transformer.

7. (original) The electromechanical device as set forth in claim 1, wherein said electromechanical device is a capacitor.

8. (original) The electromechanical device as set forth in claim 1, wherein said electromechanical device is a resonator.

9. (currently amended) The electromechanical device as set forth in claim 1, wherein said electromechanical device is a filter.

10. (original) The electromechanical device as set forth in claim 9, wherein said filter operates around a resonant frequency.

11. (currently amended) The electromechanical device as set forth in claim 1, ~~further comprising a control~~ wherein said voltage is a control voltage to dynamically change said coupling between said input electrode and said output electrodes.

12. (original) The electromechanical device as set forth in claim 1, wherein said two or more electrodes are positioned side by side on said membrane.

13. (currently amended) The electromechanical device as set forth in claim 1, wherein said membrane is selected from the group consisting of silicon nitride, silicon carbide, diamond, silicon and glass.

14. (currently amended) The electromechanical device as set forth in claim 1, wherein said membrane has varying shapes.

15. (original) The electromechanical device as set forth in claim 1, wherein said two or more electrodes have varying shapes.

16. (withdrawn) A method of making an electromechanical device, comprising the steps of:

(a) providing two or more electrodes;

(b) providing a membrane positioned with said two or more electrodes, wherein one of said two or more electrodes is an input electrode receiving an electrical signal that causes vibration of said membrane and said vibration is coupled to at least one of said two or more electrodes that is an output electrode; and

(c) providing a ground reference to said input electrode and said output electrode.

17. (withdrawn) The method as set forth in claim 16, wherein said membrane is positioned at a distance from said two or more electrodes.

18. (withdrawn) The method as set forth in claim 16, wherein said two or more electrodes are positioned at various distances from said membrane.

19. (withdrawn) The method as set forth in claim 16, wherein said membrane is a vibrating coupling membrane.

20. (withdrawn) The method as set forth in claim 16, wherein a DC bias voltage is applied to said two or more electrodes to set or modify a width of a gap in said electromechanical device.

21. (withdrawn) The method as set forth in claim 16, wherein said electromechanical device is a transformer.

22. (withdrawn) The method as set forth in claim 16, wherein said electromechanical device is a capacitor.

23. (withdrawn) The method as set forth in claim 16, wherein said electromechanical device is a resonator.

24. (withdrawn) The method as set forth in claim 16, wherein said electromechanical is a filter.

25. (withdrawn) The method as set forth in claim 24, wherein said filter operates around a resonant frequency.

26. (withdrawn) The method as set forth in claim 16, further comprising the step of providing a control voltage to dynamically change said coupling between said input electrode and said output electrodes.

27. (withdrawn) The method as set forth in claim 16, wherein said two or more electrodes are positioned side by side on said membrane.

28. (withdrawn) The method as set forth in claim 16, wherein membrane is selected from the group consisting of silicon nitride, silicon carbide, diamond, silicon and glass.

29. (withdrawn) The method as set forth in claim 16, wherein said membrane has varying shapes.

30. (withdrawn) The method as set forth in claim 16, wherein said two or more electrodes have varying shapes.

31. (withdrawn) An electronic system, comprising:

(a) an electronic circuit; and

(b) one or more membrane devices integrated with said electronic circuit.

32. (withdrawn) The electronic system as set forth in claim 31, wherein a DC bias voltage is applied to said one or more membrane devices to set a width of a gap.

33. (withdrawn) The electronic system as set forth in claim 31, wherein said one or more membrane devices is a transformer.

34. (withdrawn) The electronic system as set forth in claim 31, wherein said one or more membrane devices is a capacitor.

35. (withdrawn) The electronic system as set forth in claim 31, wherein said one or more membrane devices is a resonator.

36. (withdrawn) The electronic system as set forth in claim 31, wherein said one or more membrane devices is a filter.

37. (withdrawn) The electronic system as set forth in claim 36, wherein said filter operates around a resonant frequency.

38. (withdrawn) The electronic system as set forth in claim 31, wherein said one or more membrane devices comprises a control voltage to dynamically change said coupling between an input electrode and at least one output electrode of said device.

39. (withdrawn) A method of making an electronic system, comprising the steps of:

(a) providing an electronic circuit; and

(b) providing one or more membrane devices integrated with said electronic circuit.

40. (withdrawn) The method as set forth in claim 39, wherein a DC bias voltage is applied to said one or more membrane devices to set a width of a gap.

41. (withdrawn) The method as set forth in claim 39, wherein said one or more membrane devices is a transformer.

42. (withdrawn) The method as set forth in claim 39, wherein said one or more membrane devices is a capacitor.

43. (withdrawn) The method as set forth in claim 39, wherein said one or more membrane devices is a resonator.

44. (withdrawn) The method as set forth in claim 39, wherein said one or more membrane devices is a filter.

45. (withdrawn) The method as set forth in claim 44, wherein said filter operates around a resonant frequency.

46. (withdrawn) The method as set forth in claim 39, wherein said one or more membrane devices comprises a control voltage to dynamically change said coupling between an input electrode and at least one output electrode of said device.

DETAILED ACTION: Election/restriction

Claims 16-46 stand withdrawn from consideration per election of claims 1-15 for prosecution.

DETAILED ACTION / Paragraph 1; Claim rejections under 103(a)

Claims 1-15 stand rejected under 35 USC 103 as unpatentable over US 6,257,739 to Sun et al. "in view of the remark."

Applicants interpret Examiner's statement "in view of the remark" as meaning "for the following reasons."

With respect to claim 1, Examiner's statement of the teachings of Sun et al. is as follows: "Sun et al. disclose an electromechanical device comprising two or more electrodes 316, 317; a membrane 72/74 positioned with the two or more electrodes, wherein one of the two or more electrodes is an input electrode V1 and receives an electrical signal; and a ground 44 referenced to the input electrode V1 and the output electrode V2. Sun does not disclose an electrical signal that causes vibration of the membrane and the vibration is coupled to at least one of the two or more electrodes that is an output electrode."

Examiner contends: "It would have been obvious to one of ordinary skill in the art at the time the invention was made to form an electrical signal that causes vibration of the membrane and the vibration is coupled to at least one of the two or more electrodes that is an output electrode since it was known in the

art that an electrical signal that causes vibration of the membrane and the vibration is coupled to at least one of the two or more electrodes that is an output electrode."

Applicants note that 72/74 of Sun et al. refer to "membrane etched portions" (col 5 line 2) and as apparent from Figure 5 of Sun et al., 72 and 74 refer to locations in the structure of Sun where there is no material. However, it appears to Applicants that stage 310 of Sun et al. is a membrane positioned with electrodes 316 and 317.

Applicants have amended claim 1 to more clearly define and claim the present invention by adding language "whereby coupling between said input electrode and said at least one output electrode is provided" and by adding a limitation to "wherein a voltage is applied to said electromechanical device to vary said coupling". This amendment is supported throughout the specification (e.g., page 7, lines 11-19).

Applicants respectfully traverse the rejection of claim 1 as amended because the combination of Sun et al. with common knowledge in the art fails to create a prima facie case for obviousness of claim 1 due to lack of motivation to combine. The invention of Sun et al. is a laser mounted on a MEMS-movable stage to provide a scannable laser for display and printing applications. There is no motivation, either in Sun et al., or in common art knowledge, to modify the structure of Sun et al. to provide "a membrane positioned with said two or more electrodes, wherein said input electrode receives an electrical signal that causes vibration of said membrane and said vibration

is coupled to said at least one output electrode, whereby coupling between said input electrode and said at least one output electrode is provided" as recited in claim 1. There is also no motivation, either in Sun et al., or in common art knowledge, to modify the structure of Sun et al. to provide "wherein a voltage is applied to said electromechanical device to vary said coupling" as recited in claim 1.

The electrodes in Sun et al. are conventional MEMS actuators, which are intended to move a structure (in this case a stage with a laser on it). The idea of coupling between an input electrode and an output electrode is contrary to the invention of Sun et al., whose electrodes are essentially both input electrodes for driving the stage + laser combination. Since there are no well-defined input and output electrodes in Sun et al., varying the coupling between input and output electrodes is even more irrelevant to the invention of Sun et al. Therefore, there is no motivation within Sun for a combination that meets claim 1 as amended.

Furthermore, modification of the structure of Sun et al. to meet the limitations of claim 1 would change the principle of operation of Sun et al. For example, modification of the two input electrodes of Sun et al. to an input and an output electrode changes the operating principle of Sun et al., since the electrodes in Sun are used as input electrodes to cooperatively drive a mirror. As another example, modification of the structure of Sun et al. to provide coupling of vibration from one electrode to another electrode is detrimental to the operation of Sun et al. as a laser beam scanner. As a further

example, modification of the structure of Sun et al. to provide variable coupling of vibration from one electrode to another is detrimental to the operation of Sun et al. as a laser beam scanner.

With respect to claims 2-15, Examiner indicates that they all stand rejected "under the same rationale set forth above to claim 1."

Applicants respectfully point out that such rejections of claims 2-15 ignore the limitations expressed in these claims, and that Applicants are unable to determine 1) whether Examiner finds said limitations in Sun or in common art knowledge, and 2) what motivation Examiner finds for a combination meeting each of claims 2-15. Accordingly, Applicants respectfully believe that a prima facie case for obviousness requiring rebuttal argument has not been made by Examiner with respect to claims 2-15.

Therefore, for any further claim rejections that may occur in this prosecution, Applicants respectfully request Examiner to indicate on the record what claim elements are found in the references, what claim elements are found in common art knowledge via official notice, and the motivation to combine such elements to meet the claim.